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INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
Reed W. Bailey, Director
FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Ogden, Utah April 1961

INSECT INFESTATIONS REPORTED DURING 1960 IN FORESTS OF THE NORTHERN ROCKY MOUNTAINS

Scott Tunnock, Entomologist
Division of Forest Insect Research

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Prepared by the
Forest Insect Laboratory
Missoula, Montana

INSECT INFESTATIONS REPORTED DURING 1960 IN FORESTS OF THE NORTHERN ROCKY MOUNTAINS

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A function of the Missoula Forest Insect Laboratory is to detect forest insect damage on Forest Service lands in the northern Rocky Mountain region[1/]. The Laboratory cooperates in detection on other Federal lands and with the owners and managers of non-Federal lands. It also receives each year many reports of insect damage from cooperating private landowners, personnel of national forests and other Federal, state, or industrial forestry agencies. Information from the reports is compiled in an annual summary of insect infestations that occurred throughout the region. This report contains the current summary.

A special post card reporting form (Forest Pest Detection Field Report, Budget Bureau No. 40-R2884.1.Form FS-11) is usually used to record information about an insect infestation. This form is available to all insect survey cooperators. Insect infestations reported to the Laboratory usually contain only the descriptions of tree damage encountered, whether on the reporting form, in correspondence, or verbally to staff entomologists. The Laboratory upon request can give assistance in the recognition of tree damage symptoms caused by the more important forest insect pests in the region.

During 1960, 186 reports of forest insect infestations were received by the Missoula Forest Insect Laboratory. The reported infestations were widely scattered throughout the region and the location of each of them is shown on the accompanying map.

1/ Includes for this report northern Idaho, Montana, that portion of Yellowstone National Park in Wyoming and Idaho, and northwestern South Dakota.

In addition to focusing attention on the number of insects involved, the tabulation points out the various kinds of insects and the different forms of tree damage inflicted by them in the 1960 infestations. Some insects, mostly bark beetles, killed trees (wood borers reduced the salvageable values in recently-killed sawlog and pole timber), defoliating insects caused foliage loss and consequent reduction in growth, sucking insects interferred with the life processes of some trees, another group of insects damaged cones, seeds, and buds or caused stem deformities, while some insects caused little or no economic damage to trees but were of academic interest. The insects listed in table 1 are summarized in this manner.

	Number of species reported		
Insect groups	Total	Killed trees	Caused serious tree damage
Bark beetles	14	5	
Wood borers	5		
Defoliators	17		6
Sucking insects	9		
Cone-seed-twig insects	55		1
Miscellaneous insects	8		1

None of the 9 sucking insects reported caused serious tree damage.

Five insects injurious to cones, foliage tips, and twigs of trees were recorded this year. A pine shoot moth (no. 49) continued to kill lateral and terminal ponderosa pine shoots in a plantation near Libby, Montana.

Two bark moths were observed. Young Douglas-fir tree have been attacked for three years by one bark moth (no. 52) and some mortality has occurred.

Six insects listed as incidental are of academic interest only.

Reports received during 1960 are listed in table 2 with information on the insect species involved, locality, the host tree, and the name of the observer and the employing agency. The total of 186 infestations listed is an increase over the 142 recorded in 1959 and the 72 recorded in 1958. This trend probably reflects a greater interest in detecting forest insect pests rather than an increase in the number of infestations.

Table 1.--Identity and occurrence of insects reported to have caused damage to trees in the Northern Rocky Mountain region during 1960

Number	Common name	Order	Family	Genus and species	No. of times reported
	BARK BEETLES				
1	Douglas-fir beetle	Coleoptera	Scolytidae	Dendroctonus pseudotsugae (Hopk.)	32
2	Mountain pine beetle	Coleoptera	Scolytidae	Dendroctonus monticolae Hopk.	20
3	Engelmann spruce beetle	Coleoptera	Scolytidae	Dendroctonus engelmanni Hopk.	13
4	Western pine beetle	Coleoptera	Scolytidae	Dendroctonus brevicomis Lec.	11
5	Red turpentine beetle	Coleoptera	Scolytidae	Dendroctonus valens Lec.	1
6	Pine engraver beetles	Coleoptera	Scolytidae	Ips spp.	4
7	Oregon pine engraver	Coleoptera	Scolytidae	Ips oregonis (Eichh.)	3
8	Arizona five-spined engraver	Coleoptera	Scolytidae	Ips lecontei Sw.	1
9	Emarginate ips	Coleoptera	Scolytidae	Ips emarginatus Lec.	1
10	A lodgepole pine engraver	Coleoptera	Scolytidae	Ips guildi Blkm.	1
11	An engelmann spruce engraver beetle	Coleoptera	Scolytidae	Ips engelmanni Sw.	1
12	Douglas-fir hylesinus	Coleoptera	Scolytidae	Pseudhylesinus nebulosus Lec.	2
13	The fir engraver	Coleoptera	Scolytidae	Scolytus ventralis Lec.	1
14	Western balsam bark beetle	Coleoptera	Scolytidae	Dryocoetes confusus Sw.	1
	WOOD BORERS				
15	A wood borer in Norway maple	Coleoptera	Undetermined	Undetermined	1
16	Oregon fir sawyer	Coleoptera	Cerambycidae	Monochamus oregonensis Lec.	1
17	A roundheaded borer Douglas-fir	Coleoptera	Cerambycidae	Xylotrechus undulatus (Say)	1
18	Flatheaded fir borer	Coleoptera	Buprestidae	Melanophila drummondi Kby.	1
19	A flatheaded borer in lodgepole pine	Coleoptera	Buprestidae	Dicerca tenebrosa (Kirby)	1

Table 1.--(Continued)

Number	Common name	Order	Family	Genus and species	No. of times reported
	DEFOLIATORS				
20	Spruce budworm	Lepidoptera	Tortricidae	Choristoneura fumiferana (Clem.)	20
21	Douglas-fir needle midge	Diptera	Cecidomyiidae	Contarinia sp.	15
22	Pine butterfly	Lepidoptera	Pieridae	Neophasia menapia Feld.	3
23	Larch casebearer	Lepidoptera	Coleophoridae	Coleophora laricella (Hbn.)	2
24	An Arctiid moth on ponderosa pine	Lepidoptera	Arctiidae	Undetermined	1
25	A moth on crowns of lodgepole pine	Lepidoptera	Undetermined	Undetermined	1
26	Black-headed budworm	Lepidoptera	Tortricidae	Acleris variana (Fern.)	1
27	Lodgepole needle miner	Lepidoptera	Gelechiidae	Evagora milleri Busck	1
28	Spruce needle miner	Lepidoptera	Olethrentidae	Taniva albolineana (Kearf.)	1
29	A tortricid moth on ponderosa pine	Lepidoptera	Tortricidae	Undetermined	1
30	A sawfly on ponderosa pine	Hymenoptera	Undetermined	Undetermined	1
31	Western larch sawfly	Hymenoptera	Tenthredinidae	Anoplonyx laricivorus Roh. & Midd.	1
32	A sawfly on lodgepole pine	Hymenoptera	Diprionidae	Neodiprion fulviceps complex	1
33	A sawfly on lodgepole pine	Hymenoptera	Diprionidae	Neodiprion nanulus contortae Ross.	1
34	A sawfly on Engelmann spruce	Hymenoptera	Undetermined	Undetermined	1
35	A sawfly on ponderosa pine	Hymenoptera	Pamphiliidae	Undetermined	1
36	Larch sawfly	Hymenoptera	Tenthrediniidae	Pristiphora erichsonii (Hartig)	1
	SUCKING INSECTS				
37	Pine needle scale	Homoptera	Coccidae	Phenacaspis pinifoliae (Fitch)	4
38	Spruce spider mite	Acarina	Tetranychidae	Oligonychus ununguis (Jacobi)	3
39	Cooley spruce gall aphid	Homoptera	Phylloxeridae	Chermes cooleyi Gill	3
40	Aphid on subalpine fir	Homoptera	Aphidae	Cinara sp.	2
41	Aphid on ponderosa pine	Homoptera	Phylloxeridae	Pineus sp.	1
42	Aphid on Douglas-fir	Homoptera	Aphidae	Undetermined	1
* 43	A gall midge in ponderosa pine twigs	Diptera	Itonididae	Undetermined	1

Table 1.--(Continued)

Number	Common name	Order	Family	Genus and species	No. of times reported
	SUCKING INSECTS (cont.)				
44	A spider mite on cedar	Acarina	Tetranychidae	Undetermined	1
45	Cottony maple scale	Homoptera	Coccidae	Pulvinaris vitis L.	1
	CONE, TIP, & TWIG INSECTS				
46	Pine resin midge	Diptera	Itonididae	Retinodiplosis near inopsis O.S.	3
47	A twig moth on ponderosa pine	Lepidoptera	Pyralidae	Dioryctria sp.	3
48	A pitch nodule moth on ponderosa pine	Lepidoptera	Olethreutidae	Petrova sp.	2
49	A pine shoot moth on ponderosa pine	Lepidoptera	Olethreutidae	Eucosma sp.	1
50	Engelmann spruce weevil	Coleoptera	Curculionidae	Pissodes engelmanni Hopk.	2
	BARK MOTHS				
51	A bark moth in western white pine	Lepidoptera	Pyralidae	Dioryctria sp.	1
52	A bark moth in Douglas-fir	Lepidoptera	Olethreutidae	Laspeyresia fletcherana (Kearf.)	1
	MISCELLANEOUS INSECTS				
53	A gall fly	Hymenoptera	Cynipidae	Diplolepis politus (Ashmead)	1
54	A broad-nosed weevil	Coleoptera	Curculionidae	Scythropus sp.	1
55	A scarab beetle	Coleoptera	Scarabaeidae	Dichelonyx sp.	1
56	A leaf-cutter bee	Hymenoptera	Megachilidae	Undetermined	1
57	Ten-lined June beetle	Coleoptera	Scarabaeidae	Polyphylla decemlineata	1
58	A needle-mining moth in Engelmann spruce	Lepidoptera	Undetermined	Undetermined	1
				Total	186

* Should be listed under "Twig Insects"

Table 2.--Reports of forest insect infestations in the Northern Rocky Mountain region during 1960

Source of report[1/]	Date of examination	Locality	Observer	Agency[2/]	Causal Agent	Host[3/]
		BEAVERHEAD N.F., MONTANA				
FSR	11/ 8/60	Near Standard Cr.(T.11S.,R.1E, Sec. 4)	N. J. Howarth	FS	Douglas-fir needle midge	DF
FSR	8/ 3/60	N. Fork Meadow Cr.(T.3S.,R.5W, Sec. 30)	D. R. Jenni	FS	Engelmann spruce beetle	ES
FSR	8/ 3/60	Daisy Cr. (T.5S.,R.2W.,Sec. 33)	D. R. Jenni	FS	Douglas-fir beetle	DF
AR	8/15/60	Wise River District	R. L. Carter	FS	Spruce budworm	DF
AR	8/15/60	Dillon District	R. L. Carter	FS	Spruce budworm	DF
ASR	8/16/60	Jack, Ruby, and Horse Crs., Wade Lake	A. Tunnock	FS	Douglas-fir beetle	DF**
		BITTERROOT N. F., MONTANA				
AR	8/12/60	West Fork District	B. A. Swift	FS	Spruce budworm	DF
AR	8/12/60	Stevensville District	B. A. Swift	FS	Spruce budworm	DF
AR	8/12/60	Darby District	B. A. Swift	FS	Spruce budworm	DF
AR	8/12/60	Sula District	B. A. Swift	FS	Spruce budworm	DF
AR	8/12/60	Stevensville District	B. A. Swift	FS	Pine butterfly	PP
AR	8/12/60	West Fork District	B. A. Swift	FS	Pine butterfly	PP
AR	8/12/60	West Fork District	B. A. Swift	FS	Western pine beetle	PP
AR	8/12/60	Sula District, Cameron and Lyman Crs.	B. A. Swift	FS	Douglas-fir beetle	DF
		CLEARWATER N. F., IDAHO				
FSR	8/1/60	Pierce District	H. S. Woffenden	FS	Pine butterfly	WWP
BER	9/7/ 60	Canyon District	A. Tunnock	FS	Mountain pine beetle	WWP*
BER	9/12/60	Bungalow District	A. Tunnock	FS	Mountain pine beetle	WWP*

Table 2.--(Continued)

Source of report[1/]	Date of examination	Locality	Observer	Agency[2/]	Causal Agent	Host[3/]
		COEUR D'ALENE N. F., IDAHO				
FSR	11/28/60	St. Regis District	R. A. Cook	FS	Douglas-fir needle midge	DF
FSR	8/30/60	Kingston, Idaho	J. L. Emerson	FS	Gall fly (Diplolepis politus (Ashmead)).	WR
FSR	7/ 5/60	Coeur d'Alene N. F.	R. Z. Callaham	FS	Oregon pine engraver	WWP
AR	8/ 8/60	Wallace District, North half	F. P. Jernigan	FS	Douglas-fir beetle	DF
AR	8/ 8/60	Wallace District, North half	F. P. Jernigan	FS	Mountain pine beetle	WWP
AR	8/11/60	E. Fork Steamboat Cr.(T.51N., R.2E.)	R. N. Stickney	FS	Mountain pine beetle	WWP
AR	8/11/60	Rose, Evans, and Latour Crs.	R. N. Stickney	FS	Larch casebearer	WL
AR	8/ 8/60	St. Regis District	P. A. Decelle	FS	Douglas-fir beetle	DF
AR	8/ 8/60	St. RegistDistrict, east end	P. A. Decelle	FS	Western pine beetle	PP
		CUSTER N. F., MONT. & S. D.				
FSR	8/18/60	(T.6S.,R.44 and R.45E), (T.5S., R.44E., Sec. 30)	B. R. VanGieson	FS	Ips sp.	PP
FSR	6/22/60	Long Pines area	A. Tunnock	FS	A moth (Arctiidae)	PP*
FSR	6/ 1/60	Stocker Branch(T.6S.,R.44E., Sec. 10)	D. Scott	FS	Aphid (probably Pineus sp.)	PP
FSR	6/ 1/60	Stocker Branch(T6S.,R.44E., Sec. 10)	D. Scott	FS	A sawfly	PP
FSR	4/21/60	Long Pines area	A. Tunnock	FS	Pine needle scale	PP*
FSR	4/21/60	Long Pines area	A. Tunnock	FS	Broad-nosed weevil	PP*
FSR	4/19/60	Ashland, Montana(T.3S.,R.46E.)	A. Tunnock	FS	Arizona five-spined engraver	PP*
		DEERLODGE N. F., MONTANA				
AR	8/ 8/60	Tobacco Root Area	H. C. Rowland	FS	Spruce budworm	DF
AR	8/ 8/60	Boulder District	H. C. Rowland	FS	Spruce budworm	DF
AR	8/ 8/60	Deerlodge and Philipsburg Districts	H. C. Rowland	FS	Spruce budworm	DF

Table 2.--(Continued)

Source of report [1]	Date of examination	Locality	Observer	Agency [2]	Causal Agent	Host [3]
		FLATHEAD N. F., MONTANA				
FSR	12/ 6/60	E. Shore of Flathead Lake	C. R. Hunter	FS	Douglas-fir needle midge	DF
FSR	12/ 6/60	Condon District	L. K. Smith	FS	Douglas-fir needle midge	DF
AR	8/ 3/60	Coram District	L. R. Weir	FS	Douglas-fir beetle	DF
AR	8/ 9/60	Good Cr.(T.31N.,R.24W.,Sec. 18)	D. D. Rose	FS	Engelmann spruce beetle	ES
AR	8/ 8/60	Klelomus, Mathias, N. Fork Coal, Nokio-Yakinikak, & Hay Crs.	D. R. Cook	FS	Engelmann spruce beetle	ES
AR	8/ 8/60	Glacier View District (T.33N., R.21&20W.)	D. R. Cook	FS	Douglas-fir beetle	DF
AR	8/ 8/60	Glacier View District (T.33N., R.20W.)	D. R. Cook	FS	Pine needle scale	PP
AR	8/ 7/60	S. Fork Flathead River	J. Morrison	FS	Douglas-fir beetle	DF
AR	8/ 7/60	S. Fork Flathead River	J. Morrison	FS	Engelmann spruce beetle	ES
AR	8/ 7/60	Wounded Buck, Clark and Battery Creeks	J. Morrison	FS	Mountain pine beetle	WWP
AR	8/ 9/60	Condon District	L. K. Smith	FS	Douglas-fir beetle	DF
ASR	8/16/60	Griffin Cr.(T.30 & 29N., R.25W.)	A. Tunnock	FS	Douglas-fir beetle	DF**
		GALLATIN N. F., MONTANA				
FSR	9/ 9/60	Hyalite Drain (Moser Cr.)	B. Driver	FS	Pitch nodule moth (Petrova)	LP
FSR	9/ 2/60	Cooke City	D. Joy	FS	Aphid (Cinara sp.)	SF
FSR	8/18/60	Madison River area	T. T. Terrell	FS	Scarab beetle (Dichelonyx)	DF*
AR	8/24/60	Crazy Mtns., Bridger Mtns., Cherry and Deer Crs., All areas W. of Yellowstone R. & S. of Highway 10, and Gallatin Can.	D. W. Beaman	FS	Spruce budworm	DF
AR	8/24/60	Gardiner, Shields, Bozeman, and Gallatin Districts	D. W. Beaman	FS	Douglas-fir beetle	DF

Table 2.--(Continued)

Source[1] of report	Date of examination	Locality	Observer	Agency[2]	Causal Agent	Host[3]
		GALLATIN N.F., MONTANA (Cont.)				
ASR	8/16/60	Hebgen Lake area	A. Tunnock	FS	Douglas-fir beetle	DF**
ASR	8/16/60	Truman Gulch	A. Tunnock	FS	Moth defoliating LP crowns	LP*
ASR	8/25/60	S. Fork Gallatin R. (Yellow Mule Crs.)	A. Tunnock	FS	Mountain pine beetle	LP*
ASR	8/25/60	S. Fork Gallatin R. (Yellow Mule Crs.)	A. Tunnock	FS	Ips sp.	LP*
AR	8/24/60	Gardiner Dist.(Slough Cr.), Shields Dist. (Brackett Cr.)	D. W. Beaman	FS	Mountain pine beetle	LP
		HELENA N.F. MONTANA				
AR	7/25/60	Townsend District(Johnny Gulch)	F. R. Cowles	FS	spruce spider mite	DF
AR	7/20/60	Helena District(McQuithy Gulch, Beartrap Gulch,S.Fork Prickly Pear Cr.)	P. G. Schlamp	FS	Douglas-fir beetle	DF
AR	7/20/60	Canyon Ferry Dist.(Dry Range)	J. F. Hinman	FS	Spruce budworm	DF
AR	7/27/60	Lincoln District	F. R. Cowles	FS	Spruce budworm	DF
AR	7/20/60	Helena District	P. G. Schlamp	FS	Spruce budworm	DF
AR	7/25/60	Townsend District	F. R. Cowles	FS	Spruce budworm	DF
		KANIKSU N.F., IDAHO				
FSR	11/22/60	Bonners Ferry District	R. J. McCarthy	FS	Douglas-fir needle midge	DF
FSR	11/23/60	Falls District	A. Skoglund	FS	Douglas-fir needle midge	DF
FSR	11/16/60	Noxon Dist.(T.28N.,R.33W, Sec.11)	C. R. Howard	FS	Douglas-fir needle midge	DF
FSR	11/17/60	Trout Cr. Dist.(Lion Cr.)	W. M. Taliaferro	FS	Douglas-fir needle midge	DF
FSR	10/10/60	Noxon Ranger Station	W. G. Graham	FS	Western larch sawfly	WL*
FSR	8/15/60	Nordman, Idaho(T.62N,R.4W,Sec.17)	R. P. Latham	FS	Mountain pine beetle	WWP
FSR	7/19/60	Granite Cr.(T.55N,R.1W,Secs.23, 24-26, 30)	T. Schenarts	FS	Emarginate ips	PP*
AR	8/ 4/60	Newport Dist.(Skookum to BrownsL.)	J. R. Jansson	FS	Douglas-fir beetle	DF
AR	8/ 3/60	Granite Cr. (T.55N,R.1W)	T. Schenarts	FS	Western pine beetle	PP*
AR	8/ 3/60	Priest Lake Dist.(S.Fork Gold Cr.)	P. P. Knaus	FS	Black-headed budworm	ES,SF
AR	7/ 5/60	Falls Dist.(Quartz Cr., T.57N., R.4W.)	A. S. Skoglund	FS	Pine resin midge	PP

Table 2.--(Continued)

Source of report[1/]	Date of examination	Locality	Observer	Agency[2/]	Causal Agent	Host[3/]
		KANIKSU N.F., IDAHO (cont.)				
AR	7/ 3/60	Priest Lake Dist. (S. Fork Gold Hughes Fork, and Gold Crs., Hughes Ridge)	P. P. Knaus	FS	Oregon pine engraver	WWP
AR	7/28/60	Falls Dist. (T.58N.,R.5W.)	A. S. Skoglund	FS	Douglas-fir beetle	DF
AR	8/ 4/60	Sandpoint Dist. (Snow and Caribou Crs.)	D. M. Minister	FS	Engelmann spruce beetle	ES
AR	8/ 1/60	Bonners Ferry Dist. (Canuck, Upper Myrtle, & Malcom Crs.)	R. J. McCarthy	FS	Engelmann spruce beetle	ES
AR	7/28/60	Falls Dist. (Bear Paw Cr., T.33N.,R.45E.)	A. S. Skoglund	FS	Mountain pine beetle	WWP
AR	8/ 3/60	Lower Binarch Cr. (T.59N., R.5W.)	P. P. Knaus	FS	Mountain pine beetle	WWP
AR	8/ 3/60	General in Priest Lake Dist.	P. P. Knaus	FS	Mountain pine beetle	WWP
BER	10/10/60	Clark Fork Dist. (Granite Cr.)	A. Tunnock	FS	Red turpentine beetle	PP*
		KOOTENAI N.F., MONTANA				
FSR	12/20/60	McMillan Flat, Libby, Montana	A. Tunnock	FS	A leaf-cutter bee	PP*
FSR	8/31/60	Rexford area	R. Denton	FS	Douglas-fir needle midge	DF*
FSR	9/ 1/60	Libby Ranger Station	K. Larson	FS	A pine shoot moth	PP
FSR	8/ 3/60	Lookout Cr.(T.33 & 34N.,R.30W.)	L. Knowlen	FS	A needle-mining moth	ES
FSR	8/ 3/60	Lookout Cr.(T.33 & 34N.,R.30W.)	L. Knowlen	FS	A soft-bodied aphid	DF
FSR	8/22/60	Ten-mile and Boulder Crs.	P. C. Johnson	FS	Western pine beetle	PP*
FSR	8/ 8/60	Sylvanite District	P. Cowan	FS	Engelmann spruce beetle	ES**
FSR	8/12/60	Libby Ranger Station	E. D. Jaquish	FS	A gall midge (Itonididae)	PP
FSR	8/10/60	Star Cr.(T.32N.,R.35W., Secs. 11 & 14)	F. J. Kapel	FS	A bark moth (Dioryctria)	WWP
AR	8/ 4/60	Pinkham Cr. (T.36N.,R.28W.)	F. Bolles	FS	Moth(Laspyresia fletcherana)	DF
AR	8/ 4/60	Boulder Cr.(T.36N.,R.28 & 29W.)	F. Bolles	FS	Western pine beetle	PP
AR	8/ 4/60	Sutton Cr.(T.34N.,R.28W.,Sec.28W.)	F. Bolles	FS	Engelmann spruce beetle	ES
AR	8/ 4/60	Pinkham and Dodge Crs.	F. Bolles	FS	Douglas-fir beetle	DF**

Table 2.--(Continued)

Source of report[1/]	Date of examination	Locality	Observer	Agency[2/]	Causal Agent	Host[3/]
		KOOTENAI N.F., MONTANA (cont.)				
AR	8/ 6/60	Tobacco River Valley (T.36N., R.28W.)	F. Bolles	FS	Pine resin midge	PP*
AR	8/10/60	Rexford area	F. Bolles	FS	A twig moth (Dioryctria)	PP*
AR	8/ 8/60	Fix Cr.(T.35N.,R.31W.)	T. P. Farbo	FS	Douglas-fir beetle	DF**
AR	8/ 8/60	Jungle, Hawkins, Upper Spread, and Midge Crs.	T. P. Farbo	FS	Engelmann spruce beetle	ES**
AR	8/ 3/60	Deep Cr. & Dickey Lake(T.34N., R.25W.)	J. L. Aemisegger	FS	Douglas-fir beetle	DF**
AR	8/ 3/60	Gravel Cr.(T.36N.,R.25W.)	J. L. Aemisegger	FS	Douglas-fir beetle	DF**
AR	8/10/60	Spruce &.,Twilight, Raymond and Whoopee Creeks	L. L. Smith	FS	Mountain beetle	WWP
AR	8/10/60	Rabbit, Hummingbird & Feeder Crs.	L. L. Smith	FS	Douglas-fir beetle	DF
AR	8/ 5/60	Pipe Cr. Ridge (T.32N.,R.31W.)	K. R. Larson	FS	Mountain pine beetle	PP
AR	8/ 5/60	Lower Fisher R. and Thompson R.	O. D. Grossarth	FS	Douglas-fir beetle	DF**
AR	8/ 9/60	Ten Mile Cr. (T.33N.,R.28W.)	B. Graves	FS	Ips spp.	PP
AR	8/ 9/60	Ten Mile Cr. (T.33N.,R.28W.)	B. Graves	FS	Western pine beetle	PP
ASR	8/12/60	Pete Cr.(T.36N.,R.32W.) and E. Fork Yaak R.	A. Tunnock	FS	Mountain pine beetle	LP**
ASR	8/12/60	Wigwam Cr.(T.37N.,R.26 & 25W)	A. Tunnock	FS	Engelmann spruce beetle	ES**
		LEWIS AND CLARK N.F., MONTANA				
FSR	9/11/60	Arthur (T.15N, R.8E, Sec. 31)	C. L. Marsh	FS	Engelmann spruce weevil	CBS
FSR	6/23/60	Little Rockies	A. Tunnock	FS	Lodgepole needle miner	LP*
BER	6/23/60	Little Rockies	A. Tunnock	FS	Sawfly(Neodiprion fulviceps Complex)	LP,PP*
BER	6/23/60	Little Rockies	A. Tunnock	FS	Sawfly(N. nanulus contortae)	LP,PP*
AR	1/18/60	W. half of Belt Cr. District	J. S. Watson	FS	Spruce budworm	DF
AR	1/14/60	Judith District(Throughout)	F. R. Cornell	FS	Spruce budworm	DF
AR	1/11/60	White Sulphur Springs Dist. (Whitetail,Eagle Crs., Decker Gulch)	W. H. Sundell	FS	Spruce budworm	DF

Table 2.--(Continued)

Source of report [1/]	Date of examination	Locality	Observer	Agency [2/]	Causal Agent	Host [3/]
		LEWIS & CLARK N.F., MONTANA (cont.)				
AR	1/14/60	N.Fork Waldron Cr.(T.25N.,R.9W. and 10W)	D. C. Terry	FS	Engelmann spruce beetle	ES
FSR	5/31/60	Belt Cr. Dist.(T.15N.,R.7E., Sec. 15)	J. S/ Watson	FS	Mountain pine beetle	PP
AR	8/30/60	Musselshell Dist.(Crazy Mtns.)	C. L. Kalitowski	FS	Douglas-fir beetle	DF
AR	8/12/60	General in Musselshell Dist.	D. M. Reed	FS	Spruce budworm	DF
AR	8/ 4/60	Big Snowies Mtns.(T.11 and 12N.,R.17-19E.)	C. L. Almen	FS	Engelmann spruce beetle	ES
FSR	9/ 5/60	Musselshell Dist.(Cottonwood Cr.)	A. Tunnock	FS	Douglas-fir hylesinus	DF
		LOLO N.F., MONTANA				
FSR	11/10/60	Ninemile Dist.(T.15N.,R.22W.) Secs. 18,19,30-T.16N.,R.23W.,) Secs. 13-15,22-24.)	J. F. Hossack	FS	Douglas-fir needle midge	DF
FSR	11/22/60	Fishtrap Cr.(T.24N.,R.28W.,Sec.23)	I.Puphal	FS	Douglas-fir needle midge	DF
FSR	11/17/60	Cherry Cr.(T.21N.,R.29W.,Sec.24)	I.Puphal	FS	Douglas-fir needle midge	DF
FSR	11/15/60	Plains Dist.(T.20N.,R.25W., Secs. 19 and 20)	R. C. Lynd	FS	Douglas-fir needle midge	DF
FSR	7/13/60	Seeley Lake(T.17N.,R.14W., Sec. 13)	J. Crupper	FS	Cooley spruce gall aphid	DF
V	6/29/60	Bonita Dist.(Rock Cr.)	H. R. Humes	FS	Douglas-fir beetle	DF
V	6/28/60	Bonita Dist.(Rock Cr.)	H. R. Humes	FS	Spruce budworm	DF
AR	7/17/60	One infestation each Powell & Thompson Falls Districts	W. E. Green	FS	Engelmann spruce beetle	ES
AR	7/17/60	General over Forest	W. E. Green	FS	Douglas-fir beetle	DF**
ASR	7/10/60	Bend G. S.(Meadow Cr.)	A. Tunnock	FS	Western pine beetle	PP*
		NEZPERCE N.F., IDAHO				
FSR	6/11/60	Slate Cr.(T.27N.,R.2E., Sec. 26 & 27)	J. H. Freeman	FS	A twig moth(Dioryctria)	PP*
AR	8/18/60	General over Clearwater Dist.	J. R. Lyman	FS	Douglas-fir beetle	DF

Table 2.--(Continued)

Source of report [1]	Date of examination	Locality	Observer	Agency [2]	Causal Agent	Host [3]
		NEZPERCE N.F., IDAHO (cont.)				
AR	8/10/60	Widely scattered over Selway Dist.	Dist. Ranger	FS	Douglas-fir beetle	DF
AR	8/10/60	Occasional groups on Selway Dist.	Dist. Ranger	FS	Western pine beetle	PP
AR	8/11/60	Moose Cr. Dist.(T.31N.,R.13 & 14E)	W. Magnuson	FS	Douglas-fir beetle	DF
BER	7/18/60	Heavy in western part of Forest	A. Tunnock	FS	Douglas-fir beetle	DF*
BER	7/18/60	W.Fork Race Cr. (sec. 14)	A. Tunnock	FS	Spruce spider mite	DF*
BER	7/18/60	Allison, Van, John Day, and Slate Crs.	A. Tunnock	FS	Western pine beetle	PP*
BER	7/18/60	Widespread through Forest	A. Tunnock	FS	Aphid (Cinara)	GF*
		ST. JOE N. F., IDAHO				
AR	8/ 1/60	Palouse Dist.(T.41N.,R.1E)	C. J. Miller	FS	Ips spp.	PP
AR	8/ 1/60	Calder-Clarkia Districts (T.44 & 45N.,R.1 & 2E.; T.46 & 47N.,R.1-4W.)	C. J. Miller	FS	Larch casebearer	WL
AR	8/ 1/60	Clarkia Dist. (T.42N.,R.4E., Secs. 22,23,26,27)	C. J. Miller	FS	Mountain pine beetle	WWP
AR	8/ 1/60	Princeton Dist. (T.41N.,R.2E.)	C. J. Miller	FS	Mountain pine beetle	WWP
FSR	11/ 1/60	Clarkia Dist. (T.42N.,R.3E., Sec. 8 & 9)	D. Graham	FS	Mountain pine beetle	WWP
		FLATHEAD INDIAN RESERVATION, MONTANA				
FSR	8/22/60	North of Hot Springs, Montana	P. C. Johnson	FS	Western pine beetle	PP*
ASR	8/12/60	Mill Cr. (T.24N.,R.24W.)	A. Tunnock	FS	Douglas-fir beetle	DF**
ASR	8/12/60	Rainbow Lake; T.19N.,R.24W.; T.16N.,R.21W.	A. Tunnock	FS	Douglas-fir beetle	DF**
ASR	8/12/60	T.18N.,R.24W.,Sec. 26	A. Tunnock	FS	Western pine beetle	PP**
		IDAHO (Private Lands)				
FSR	6/15/60	Route #3, St.Maries to Route#10	A. Tunnock	FS	The fir engraver	GF*
FSR	11/ 4/60	Pinehurst	A. Lister	P	Cooley spruce gall aphid	CBS
FSR	5/19/60	St. Maries	R. Slade	P	A wood borer	NM

Table 2.--(Continued)

Source of report[1]	Date of examination	Locality	Observer	Agency[2]	Causal Agent	Host[3]
		MONTANA (Private Lands)				
FSR	4/ 4/60	Choteau	D. C. Terry	FS	Pine needle scale	ES
FSR	5/16/60	Missoula	Mrs. M. Larson	P	Cooley spruce gall aphid	ES
FSR	6/21/60	D.M. Ellison Ranch, Gallatin area	D.M. Ellison	P	Engelmann spruce weevil	ES
FSR	6/29/60	Rexford	G. Rich	P	Sawfly on Engelmann spruce	ES
FSR	6/20/60	10 miles east of Miles City	A. Tunnock	FS	A sawfly (Pamphiliidae)	PP*
FSR	7/17/60	Blackfoot River	B. Denton	FS	Larch sawfly	WL*
FSR	7/18/60	Missoula	B. Denton	FS	Ten-lined June beetle	PP
FSR	7/27/60	Garnet Range (T.12N.,R.15W., Sec. 16)	S. J. Finch	MSFD	Spruce budworm	DF
FSR	8/22/60	Between Rexford & Eureka	P. C. Johnson	FS	Pine resin midge	PP*
FSR	9/ 8/60	White Sulphur Springs	F. T. Stewart	FS	Spruce spider mite	ES,DF
FSR	10/25/60	Plains	J. H. Mikkelson	P	Douglas-fir needle midge	DF
FSR	9/29/60	Near Alberton	R. Ruthmeyer	CEA	Douglas-fir needle midge	DF
FSR	10/13/60	Livingston	C. S. Ludwigson	P	A spider mite	OC
FSR	4/11/60	Rexford area	J. B. Parrish	JNLC	A twig moth (Dioryctria)	PP
FSR	5/13/60	Hamilton	B. A. Swift	FS	Spruce needle miner	CBS
FSR	4/30/60	W. Shore of Flathead Lake	N. C. Rosston	P	Douglas-fir hylesinus	DF
		YELLOWSTONE NATIONAL PARK, WYOMING				
FSR	8/25/60	Mt. Washburn area	M. W. Myers	NPS	Western balsam bark beetle	SF
FSR	6/21/60	Mt. Washburn bus parking lot	J. C. Gynn	FS	Mountain pine beetle	WSB*
ASR	8/16/60	Mammoth area	A. Tunnock	FS	Douglas-fir beetle	DF**
		GLACIER NATIONAL PARK, MONTANA				
BER	9/23/60	Kintla Lake	A. Tunnock	FS	Mountain pine beetle	LP*
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Ips guildi	LP*
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Douglas-fir beetle	DF*
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Ips engelmanni	ES*
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Oregon pine engraver	WWP*
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Oregon fir sawyer	SF*

Table 2.--(Continued)

Source of report[1/]	Date of examination	Locality	Observer	Agency[2/]	Causal Agent	Host[3/]
		GLACIER NATIONAL PARK, MONTANA (continued)				
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Flatheaded fir borer	DF*
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Xylotrechus undulatus	DF*
BER	8/ 1/60	Coal Creek Burn	A. Tunnock	FS	Dicterca tenebrosa	LP*
		MONTANA (STATE LANDS)				
FSR	6/21/60	Medicine Rocks State Park	A. Tunnock	FS	Pitch nodule moth (Petrova)	PP*
FSR	6/21/60	Medicine Rocks State Park	A. Tunnock	FS	A moth (Tortricidae)	PP*
		FEDERAL LANDS (MONTANA)				
V	3/18/60	Missoula Federal Building	S. M. Gadach	GSA	Pine needle scale	OP*
V	3/18/60	Missoula Federal Building	S. M. Gadach	GSA	Cottony maple scale	SM*

KEY TO ABBREVIATIONS IN TABLE TWO

1/

AR = annual insect report of Forest Service district rangers
ASR = aerial survey report
BER = biological evaluation report
FSR = field surveillance report
V = verbal
* = area surveyed on the ground by Laboratory personnel
** = area surveyed from the air by Laboratory personnel

2/

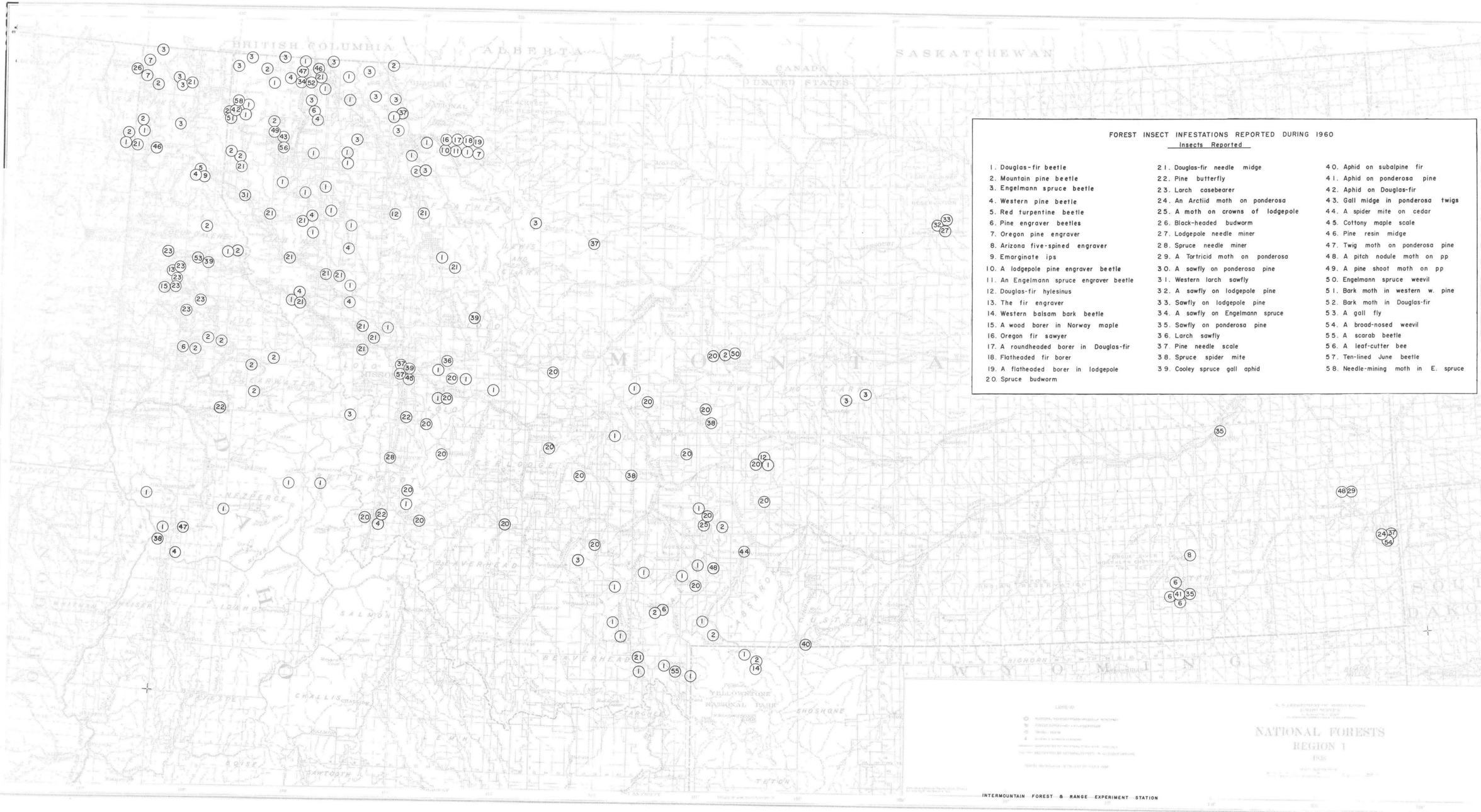
CEA = County Extension Agent
FS = United States Forest Service
GSA = General Services Administration
MSFD = Montana State Forestry Department
NPS = National Park Service
JNLC = J. Neils Lumber Co.
P = Private individual

3/

CBS = Colorado blue spruce
DF = Douglas-fir
ES = Engelmann spruce
GF = grand fir
LP = lodgepole pine
NM = Norway maple
OC = ornamental cedar
OP = ornamental pine
PP = ponderosa pine
SF = subalpine fir
SM = silver maple
WBP = white bark pine
WL = western larch
WR = wild rose
WWP = western white pine

Table 3.--Frequency of reports from cooperating agencies during 1960

Agency		No. of reports
General Services Administration		2
U. S. Forest Service		
Regional Office		4
National Forests:	Beaverhead	5
	Bitterroot	9
	Clearwater	1
	Coeur d'Alene	8
	Custer	1
	Deerlodge	3
	Flathead	11
	Gallatin	5
	Helena	6
	Kaniksu	18
	Kootenai	22
	Lewis and Clark	11
	Lolo	9
	Nezperce	5
	St. Joe	5
Missoula Forest Insect Laboratory		49
Montana State Forestry Department		1
National Park Service		1
County Extension Agents		1
J. Neils Lumber Company		1
Private individuals		8
	Total	186



FOREST INSECT INFESTATIONS REPORTED DURING 1960

Insects Reported

1. Douglas-fir beetle
2. Mountain pine beetle
3. Engelmann spruce beetle
4. Western pine beetle
5. Red turpentine beetle
6. Pine engraver beetles
7. Oregon pine engraver
8. Arizona five-spined engraver
9. Emarginate ips
10. A lodgepole pine engraver beetle
11. An Engelmann spruce engraver beetle
12. Douglas-fir hylesinus
13. The fir engraver
14. Western balsam bark beetle
15. A wood borer in Norway maple
16. Oregon fir sawyer
17. A roundheaded borer in Douglas-fir
18. Flatheaded fir borer
19. A flatheaded borer in lodgepole
20. Spruce budworm
21. Douglas-fir needle midge
22. Pine butterfly
23. Larch casebearer
24. An Arctiid moth on ponderosa
25. A moth on crowns of lodgepole
26. Black-headed budworm
27. Lodgepole needle miner
28. Spruce needle miner
29. A Tortricid moth on ponderosa
30. A sawfly on ponderosa pine
31. Western larch sawfly
32. A sawfly on lodgepole pine
33. Sawfly on lodgepole pine
34. A sawfly on Engelmann spruce
35. Sawfly on ponderosa pine
36. Larch sawfly
37. Pine needle scale
38. Spruce spider mite
39. Cooley spruce gall aphid
40. Aphid on subalpine fir
41. Aphid on ponderosa pine
42. Aphid on Douglas-fir
43. Gall midge in ponderosa twigs
44. A spider mite on cedar
45. Cottony maple scale
46. Pine resin midge
47. Twig moth on ponderosa pine
48. A pitch nodule moth on pp
49. A pine shoot moth on pp
50. Engelmann spruce weevil
51. Bark moth in western w. pine
52. Bark moth in Douglas-fir
53. A gall fly
54. A broad-nosed weevil
55. A scarab beetle
56. A leaf-cutter bee
57. Ten-lined June beetle
58. Needle-mining moth in E. spruce

NATIONAL FORESTS
REGION 1
1960

INTERMOUNTAIN FOREST & RANGE EXPERIMENT STATION